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C. J. Lee  
3/28/99  
PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Jorge A. Morando  
For : MATERIAL FORMULATION FOR  
GALVANIZING EQUIPMENT  
SUBMERGED IN MOLTEN ALUMINUM  
AND ALUMINUM/ZINC MELTS  
Serial No. : 08/958,614  
Filed : October 27, 1997  
Last Office Action : November 19, 1998  
Art Unit : 1742  
Examiner : D. Yee  
Attorney Docket No. : JAM 2 005-3/MJV 106 B 1 CIP  
Cleveland, Ohio 44114-2518  
March 18, 1999



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DECLARATION UNDER 37 CFR § 1.132

Asst. Commissioner for Patents  
Washington, DC 20231

Dear Sir:

I, Richard S. Henderson, hereby declare that:

1. I received a Bachelor of Science Degree in Chemistry from Pennsylvania State University in 1977.
2. I received a Ph.D. in Inorganic Chemistry from the Massachusetts Institute of Technology in 1981.
3. From 1981 to 1992, I was employed by The Standard Oil Company/BP America with my primary responsibility being in the field of inorganic chemistry, particularly, material science.
4. Since February 1993, I have held the position of Director of Technology at Metaullics Systems Company, L.P.

5. I have been a named inventor on more than one dozen U.S. Patents and have been the director of the research and development efforts of Metaullics for over 5 years.
6. I have read and understood United States Application Serial No. 08/958,614 ("the application").
7. I have read and understood United States Patent No. 4,034,589.
8. I have observed that U.S. Patent No. 4,034,588 teaches a broad range of nickel content from 2% to 20% and examples ranging from 2.4 to 10.2%. Through experiments performed on behalf of Metaullics Systems Co., L.P., and Alphatech, Inc. with which I am familiar, I believe that greater than 10 percent Ni is an important requirement of the invention as set forth in the application to achieve significant improvements in toughness and corrosion/oxidation resistance in molten zinc and aluminum and adjacent air environments. Furthermore, 10% Ni is important to achieve an asymptotic Ks stability.
9. I have observed that U.S. Patent No. 4,034,588 teaches a maximum 1.07% manganese content. Through experiments performed on behalf of Metaullics Systems Co., L.P., and Alphatech, Inc. with which I am familiar, I can conclude that a higher Mn content is an important requirement of the invention as set forth in the application to achieve castability and because the solubility (ks) of Fe-Mn in molten zinc is lower than pure Fe.
10. I have observed that U.S. Patent No. 4,034,588 teaches a maximum cobalt range of 5% to 65% and all pertinent examples

require at least 48%. Through experiments performed on behalf of Metaullics Systems Co., L.P., and Alphatech, Inc. with which I am familiar, I can conclude that less than 15% cobalt by weight is an important requirement of the invention set forth in the application because of the cost associated with cobalt and the finding that 15% cobalt provides a solution matrix which contains carbide forming elements to reduce solubility and improve high temperature strength of the alloy in molten zinc and aluminum environments.

11. Based on the opinions set forth above, I can conclude that an alloy of the type described and suggested in U.S. Patent 4,034,580 would not function satisfactorily in a molten aluminum or zinc environment and would be inferior to the invention described in 08/938,614.
12. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements have been made with knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of United States Code, and that such willful, false statements may jeopardize the validity of the application or any patent issuing thereon.

3-18-99  
Date

Richard S Henderson  
Dr. Richard S. Henderson